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# CATALOGUE OF STARS

FOR THE EPOCH

## JAN. 1, 1892

## FROM OBSERVATIONS

BY THE

# GREAT TRIGONOMETRICAL SURVEY OF INDIA.

COMPILED UNDER THE DIRECTION OF

COLONEL H. R. THUILLIER, C.I.E., R.E., SURVEYOR GENERAL OF INDIA.

BY

COLONEL G. STRAHAN, R.E., DEPUTY SURVEYOR GENERAL,
IN CHARGE OF THE TRIGONOMETRICAL BRANCH OF THE SURVEY OF INDIA.

Dehra Dun:
PRINTED AT THE OFFICE OF THE TRIGONOMETRICAL BRANCH, SURVEY OF INDIA.
B. V. HUGHES.

1893.

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Astr. 808. 93

His Excellency the Viceroy

# PREFACE.

For the effective prosecution of a geodetic survey, it is indispensable that the latitudes and longitudes of a certain number of the principal stations of the triangulation should be obtained from astronomical observations, independently of their values as computed from the triangulation. The great accumulation of observed zenith distances of stars for latitudes, and of observed transits for longitudes in the geodetic survey of India, gave rise to the conviction that the material thus laboriously collected might be utilized for compiling a star catalogue, a conviction which has resulted in the publication of the accompanying list of star-places for January, 1892, with the necessary constants for the reduction of their places to other epochs.

In order that the method by which the latitude and longitude observations were employed in the construction of the catalogue may be understood, a few introductory remarks seem necessary.

To begin with the Right Ascensions. These are purely differential, that is to say they are obtained by measurement of the difference of Right Ascension of the catalogued star and of some adjacent Nautical Almanac star observed with it; the latter being considered for the purposes of this Catalogue as errorless. For convenience of reference the name of the comparison Nautical Almanac star or stars thus employed is entered in the fifth column of the Catalogue.

In determining differences of longitude in India with the help of the electric telegraph, the method adopted as being the most direct and trustworthy was to record at both stations, by one and the same clock, the times of transit of certain stars at intervals of from one to three minutes, arranged in groups of eight or ten. The clock at the eastern station was employed first, and when two groups of stars had passed, the clock at the western station was similarly used. During the passage of each group the whole apparatus remained in *statu quo*, excepting only the necessary change in altitude of the transit telescope, so that when all corrections for collimation, level, and azimuth have been made, the interval between the transits of any two stars at either station represents the difference of their right ascensions. Each station furnishes a record of this description. As it is obvious that only approximate star places are required when this method is adopted, B.A.C. stars were freely used; for the differences of longitude depend solely upon the time occupied by a star passing from the meridian of the eastern, to that of the western observer. It was however found convenient for reasons connected with the subsequent computation, which need not be entered into here, to introduce a Nautical Almanac star into each group; the transit observations therefore furnish the difference of right ascension between this Nautical Almanac star and every other star in

the group. It has thus most fortunately happened that this practice, which was originally introduced for a totally different purpose, has rendered possible the determination of the Right Ascensions of nearly all the stars used in the longitude observations.

It would be superfluous to enter into any minute details of the instruments employed, especially as they are given at considerable length in Volumes IX, X and XV of the *Account of the Operations of the Great Trigonometrical Survey of India*, suffice it to say that the transit telescopes are by Messrs. T. Cooke and Sons of York, their effective aperture is 5 inches, and their focal length slightly over 5 feet. Their diaphragms are wired to carry two horizontal, and twenty-five vertical, wires in tallies of five each, the mean distance between them being 2·4 seconds of time, with a double interval between the tallies. The whole number of vertical wires was never used, the ordinary number being eleven or fifteen, equally distributed on either side of the central one. The collimation was adjusted by a pair of collimators, one to the north and one to the south, and the level by reflection of the system of wires from a mercury trough, with the aid of a Bohnenberger eye-piece. The azimuthal deviation was in almost all cases determined by reference to a pair of circumpolar stars, one at the upper, and the other at the lower culmination. A zenith distance not exceeding 24° south or north was laid down as a limit for the longitude stars. The transits were recorded by electricity on a chronograph, in a way which calls for no special mention here, and it was found that the probable error of the estimated time of a star passing one wire was about $0^s{\cdot}04$, and consequently about $0^s{\cdot}01$ for the whole group of fifteen wires. A full longitude determination consisted generally of six nights' work, on each of which the same groups with some few exceptions were employed.

In forming the Catalogue the times of transit of every star in a group, including the Nautical Almanac comparison star, were first purified from all known sources of error, and hence the difference of the right ascension of each star from that of the comparison star became known. The true right ascension of the comparison star at the moment of observation was then computed from the Nautical Almanac data, and hence the true right ascension of every observed star was obtained for that instant.

The place thus found was then corrected by the "Quantities for correcting the places of Stars" given in the Nautical Almanac, to reduce it to January 1 of the year of observation, using the proper motion, for this short interval, as given in the best catalogue available.

It was now quite simple to reduce the place to January 1, 1892 (which date is taken for the epoch of the Catalogue) as far as precession and nutation were concerned, but it became a matter of great doubt and difficulty to decide upon the proper motion; for in some cases the intervals between the date of observation and the epoch of the Catalogue, are so considerable, as to make it by no means an unimportant matter what proper motion is used for bringing up the place to the latter date. It was believed that the observations on which this Catalogue was founded were sufficiently accurate to give a reliable indication of what proper motion a star had been endued with since it had been last observed at some standard observatory; and to this end a sort of short history or abstract of its places, as determined from the Greenwich Catalogues of 1860, 1864, 1872 and 1880, was compiled, among which the places found from the longitude observations were inserted in their proper position according to date.

All these positions were then by the application of the precession and secular variation brought up to the epoch of January 1, 1892, *proper motion being entirely neglected.*

An examination of these showed the movements of each star due to its proper motion for a period of time of from twenty to thirty years, and from a consideration of these a proper motion was deduced which seemed to involve the minimum of discrepancy in the results, assuming that the proper motion in right ascension was proportional to the time. There seems to be in some cases evidence of this assumption being unsound,

but the quantities involved are so minute that it would be unsafe to base any theory upon them; and the proper motion assigned in all cases, and entered in the Catalogue, was such as to best represent the star's position on the supposition of uniform motion in right ascension. The finally reduced right ascension on January 1, 1892, as given in the Catalogue, is the mean of all the places found from the longitude observations brought up with the proper motion obtained as above.

The formulæ employed in computing the annual precession in right ascension and its secular variation are as follows:—

$$\text{Precession in seconds of time} = 3\cdot0726 + [0\cdot1260838] \sin a \cot \text{N.P.D.}$$

$$\text{Secular variation do.} = [\bar{2}\cdot1138] \sin a \cos a \operatorname{cosec}^2 \text{N.P.D.} + [\bar{3}\cdot9878] p \cos a \cot \text{N.P.D.}$$
$$+ 0\cdot00322 - [\bar{4}\cdot6338] p$$

where $a$ is the star's right ascension in arc, and N.P.D. the north polar distance, both to the nearest second, and $p$ in the latter formula is the annual precession in R. A. The formula for $p$ is deduced as follows from that given at page 617 of Volume I of Chauvenet's "Manual of Spherical and Practical Astronomy," 2nd edition:—

$$p = m + n \sin a \cot \text{N.P.D.}$$

where
$$m = 46''\cdot0623 + 0''\cdot0002849\, t$$
$$n = 20''\cdot0607 - 0''\cdot0000863\, t$$

$t$ being the number of years elapsed since 1800.

Substituting 92 for $t$ and dividing by 15 to reduce to seconds of time, we obtain

$$m = 3^s\cdot0726$$
$$\log n = 0\cdot1260838.$$

The North Polar Distances were determined from zenith distance observations made with the Astronomical Circles Nos. 1 and 2, Strange's Zenith Sectors Nos. 1 and 2 and in a few with Troughton and Simms' Zenith Telescope. Detailed descriptions of the first two kinds of instruments will be found in Volume XI of the *Account of the Operations of the Great Trigonometrical Survey of India*, and it will suffice to say that each of the Astronomical Circles has an effective aperture of 3·46 inches and a focal length of 53·84 inches and that each of the Zenith Sectors has an effective aperture of 4 inches and a focal length of 48·5 inches. The Zenith Telescope is of the usual pattern and has an effective aperture of 2·5 inches and a focal length of 30 inches.

The general principles on which the North Polar Distances were determined is as follows:—the latitude of each station being obtained from observations to a great number of stars, it was presumed that the errors of stars' places cancel in the mean and that the latitude is practically correct. The observations of zenith distances from which the latitude was determined were also accepted so that each observation gave an equation as follows:—

$$\text{north polar distance} = \text{co-latitude} \pm \text{zenith distance}$$

the upper and lower signs applying to stars south and north of the zenith respectively. As, however, the Astronomical Circles gave the latitude as determined by north stars different from that as determined by south stars, the co-latitude as determined by north stars only was used in the above equation when a north star was under consideration and similarly for south stars.

The North Polar Distance was thus obtained for the date of observation at a particular station: the necessary corrections to reduce to January 1 having been already computed, were applied and the mean of the results taken to represent the star's north polar distance on January 1 of a certain year as deduced from observations at a particular station. The same procedure was applied at each station where the star was observed, the results being the north polar distances of the star on January 1 of certain years.

The star's places were then brought up to January 1, 1892, proper motion being entirely neglected.

Just as in the case of the right ascensions, these places were examined and that value assigned to the proper motion which seemed best to accord with the observations.

The proper motion was then applied and the mean of the results taken as the star's North Polar Distance on January 1, 1892.

In a few cases when a star was observed with the zenith telescope, the results of the observations are the sum of the north polar distances of that star and of another whose place was found in the English, French or German Nautical Almanac, and taken from there as correct: the star's place was then found by simple subtraction.

The formulæ employed in computing the annual precessions in north polar distance and its secular variation are as follows:—

$$\text{Precession in seconds of arc} = -[1\cdot3021751]\cos a$$

$$\text{Secular variation} \ldots\ldots = [\bar{1}\cdot1638]\, p \sin a + [\bar{3}\cdot9360]\cos a.$$

The magnitudes of the stars contained in this catalogue were taken from the Greenwich Catalogues where possible, in all other cases they are copied from the B. A. C.

G. STRAHAN, Colonel, R.E.,
*Dy. Surveyor General,*
*In charge Trigonometrical Surveys.*

Dehra Dun:
*July, 1893.*

# CATALOGUE OF STARS

FOR THE EPOCH

## JAN. 1, 1892

## FROM OBSERVATIONS

BY THE

# GREAT TRIGONOMETRICAL SURVEY

OF

# INDIA.

| No. | Name of Star | Mag. | Mean Right Ascension Jan. 1, 1892 | Nautical Almanac Comparison Star | No. of Observations | Annual Precession | Secular Variation | Proper Motion |
|---|---|---|---|---|---|---|---|---|
| | | | h m s | | | s | s | s |
| 1 | 9 Trianguli . $\gamma$ | 5·5 | 2 10 53·602 | $\xi^2$ Ceti | 14 | + 3·5482 | + 0·0293 | + 0·005 |
| 2 | 22 Arietis . . $\theta$ | 5·6 | 2 12 6·997 | „ | 14 | + 3·3292 | + 0·0180 | − 0·002 |
| 3 | Piazzi II. 61 . | 6·0 | 2 16 6·966 | „ | 14 | + 3·7208 | + 0·0381 | − 0·009 |
| 4 | 14 Trianguli . . | 5·3 | 2 25 30·600 | „ | 14 | + 3·6417 | + 0·0316 | 0·000 |
| 5 | 26 Persei . . $\beta$ | Var. | 3 1 8·403 | $\delta$ Arietis | 12 | + 3·8851 | + 0·0355 | − 0·002 |
| 6 | 55 Arietis . . . | 5·5 | 3 3 6·826 | $\delta$ Arietis | 12 | + 3·5963 | + 0·0235 | − 0·003 |
| 7 | 28 Persei . . $\omega$ | 4·7 | 3 4 19·010 | „ | 12 | + 3·8580 | + 0·0335 | − 0·003 |
| 8 | Piazzi III. 5 . | 6·0 | 3 7 46·678 | „ | 12 | + 3·9552 | + 0·0370 | + 0·007 |
| 9 | Piazzi III. 23. | 4·8 | 3 11 58·481 | „ | 12 | + 3·7383 | + 0·0273 | 0·000 |
| 10 | Piazzi III. 32. | 4·7 | 3 13 48·184 | „ | 10 | + 3·6194 | + 0·0228 | − 0·001 |
| 11 | 64 Arietis . . . | 5·6 | 3 17 55·885 | $o$ Tauri | 10 | + 3·5324 | + 0·0195 | + 0·004 |
| 12 | 2 Tauri . . $\xi$ | 3·8 | 3 21 19·026 | „ | 6 | + 3·2421 | + 0·0117 | + 0·003 |
| 13 | 5 Tauri . . $f$ | 4·3 | 3 24 54·735 | „ | 18 | + 3·3049 | + 0·0130 | + 0·008 |
| 14 | Piazzi III. 104 | 6·0 | 3 34 5·974 | $\eta$ Tauri and $o$ Tauri | 24 | + 3·8895 | + 0·0284 | − 0·004 |
| 15 | 40 Persei . . $o$ | 6·0 | 3 35 31·884 | „ „ | 22 | + 3·7906 | + 0·0250 | + 0·002 |
| 16 | 38 Persei . . $o$ | 4·0 | 3 37 32·656 | $\eta$ Tauri | 18 | + 3·7503 | + 0·0234 | − 0·003 |
| 17 | 19 Tauri . . . | 4·4 | 3 38 46·645 | „ | 18 | + 3·5613 | + 0·0180 | 0·000 |
| 18 | 42 Persei . . $n$ | 6·0 | 3 42 42·957 | „ | 8 | + 3·7831 | + 0·0235 | − 0·004 |
| 19 | Piazzi III. 170 | 5·5 | 3 43 49·241 | „ | 32 | + 3·5951 | + 0·0183 | − 0·004 |
| 20 | 44 Persei . . $\zeta$ | 3·1 | 3 47 20·541 | „ | 8 | + 3·7601 | + 0·0221 | + 0·001 |
| 21 | 45 Persei . . $\epsilon$ | 3·0 | 3 50 36·279 | $\eta$ Tauri . | 6 | + 4·0101 | + 0·0287 | + 0·001 |
| 22 | 46 Persei . . $\xi$ | 4·1 | 3 51 57·345 | „ and A Tauri | 32 | + 3·8806 | + 0·0246 | − 0·002 |
| 23 | 39 Tauri . . $A^2$ | 6·5 | 3 58 56·558 | A Tauri | 20 | + 3·5325 | + 0·0153 | + 0·011 |
| 24 | 44 Tauri . . $p$ | 5·6 | 4 4 15·147 | „ | 20 | + 3·6482 | + 0·0169 | − 0·003 |
| 25 | 52 Persei . . $f$ | 4·9 | 4 7 32·201 | „ | 12 | + 4·0694 | + 0·0265 | − 0·004 |
| 26 | 48 Tauri . . . | 6·4 | 4 9 38·386 | A Tauri | 6 | + 3·3930 | + 0·0116 | + 0·008 |
| 27 | 52 Tauri . . $\phi$ | 5·1 | 4 13 42·651 | „ | 6 | + 3·6842 | + 0·0164 | − 0·002 |
| 28 | 68 Tauri . . $\delta^2$ | 4·2 | 4 19 14·371 | $\epsilon$ Tauri | 4 | + 3·4582 | + 0·0118 | + 0·006 |
| 29 | Piazzi IV. 99. | 5·0 | 4 24 22·521 | „ | 8 | + 3·4221 | + 0·0108 | − 0·003 |
| 30 | 85 Tauri . . . | 6·0 | 4 25 41·512 | „ | 18 | + 3·4151 | + 0·0106 | + 0·003 |
| 31 | Piazzi IV. 148 | 5·9 | 4 34 34·061 | $\epsilon$ Tauri and $\iota$ Aurigæ | 20 | + 3·7459 | + 0·0145 | − 0·001 |
| 32 | 94 Tauri . . $\tau$ | 4·4 | 4 35 45·604 | $\iota$ Aurigæ | 10 | + 3·5957 | + 0·0121 | − 0·007 |
| 33 | Piazzi IV. 169 | 5·3 | 4 38 26·609 | „ | 6 | + 3·3149 | + 0·0084 | + 0·004 |
| 34 | 1 Aurigæ. . . | 5·2 | 4 42 38·310 | „ | 10 | + 4·0334 | + 0·0178 | − 0·008 |
| 35 | 96 Tauri . . . | 6·0 | 4 43 33·318 | „ | 30 | + 3·4280 | + 0·0092 | + 0·003 |

| No. | Mean North Polar Distance Jan. 1, 1892 | No. of Stations of Observation | Total No. of Observations | Annual Precession | Secular Variation | Proper Motion | Number in B.A.C. | Number in Gr. Cat. 1872 | Number in Gr. Cat. 1880 |
|---|---|---|---|---|---|---|---|---|---|
| | ° ′ ″ | | | ″ | ″ | ″ | | | |
| 1 | 56 39 8·4 | 1 | 4 | − 16·870 | + 0·287 | + 0·020 | 698 | ... | ... |
| 2 | 70 35 55·9 | 5 | 19 | − 16·812 | + 0·272 | + 0·015 | 707 | 210 | 350 |
| 3 | 49 5 39·3 | 2 | 11 | − 16·619 | + 0·311 | + 0·100 | 727 | 212 | 356 |
| 4 | 54 19 57·8 | 1 | 8 | − 16·145 | + 0·322 | − 0·012 | 772 | 226 | 376 |
| 5 | 49 27 39·0 | 1 | 4 | − 14·109 | + 0·409 | − 0·020 | 963 | 285 | 464 |
| 6 | 61 20 9·3* | ... | ... | − 13·986 | + 0·382 | + 0·026* | 974 | 288 | 471 |
| 7 | 50 47 56·2 | 3 | 14 | − 13·910 | + 0·411 | − 0·020 | 981 | 290 | 472 |
| 8 | 47 54 0·3 | 1 | 6 | − 13·690 | + 0·427 | − 0·020 | 993 | ... | ... |
| 9 | 56 10 22·6 | 2 | 8 | − 13·420 | + 0·411 | + 0·060 | 1017 | 305 | 499 |
| 10 | 61 20 38·4 | 4 | 105 | − 13·300 | + 0·401 | + 0·067 | 1025 | ... | 504 |
| 11 | 65 39 31·7 | 11 | 131 | − 13·028 | + 0·397 | + 0·010 | 1052 | 313 | 517 |
| 12 | 80 38 39·0 | 2 | 6 | − 12·801 | + 0·369 | 0·000 | 1068 | 319 | 526 |
| 13 | 77 26 2·1 | 18 | 68 | − 12·558 | + 0·381 | + 0·030 | 1087 | 325 | 539 |
| 14 | 52 46 8·8 | 2 | 8 | − 11·921 | + 0·461 | 0·000 | 1123 | 334 | ... |
| 15 | 56 22 54·9 | 2 | 7 | − 11·820 | + 0·452 | 0·000 | 1132 | ... | ... |
| 16 | 58 3 16·0 | 18 | 228 | − 11·677 | + 0·450 | + 0·010 | 1138 | 340 | 571 |
| 17 | 65 52 19·5 | 3 | 15 | − 11·589 | + 0·429 | + 0·060 | 1151 | ... | 577 |
| 18 | 57 14 25·7 | 3 | 14 | − 11·306 | + 0·460 | + 0·010 | 1175 | ... | ... |
| 19 | 64 44 43·0 | 2 | 97 | − 11·226 | + 0·439 | ... | 1192 | ... | 596 |
| 20 | 58 26 15·9 | 11 | 151 | − 10·970 | + 0·464 | + 0·020 | 1207 | 355 | 603 |
| 21 | 50 18 9·2 | 1 | 9 | − 10·730 | + 0·499 | + 0·016 | 1219 | 361 | 610 |
| 22 | 54 31 12·3 | 2 | 8 | − 10·630 | + 0·484 | + 0·013 | 1228 | 363 | 613 |
| 23 | 68 16 58·8 | 2 | 10 | − 10·106 | + 0·449 | + 0·181 | 1260 | 374 | 633 |
| 24 | 63 48 5·2 | 7 | 20 | − 9·702 | + 0·470 | + 0·069 | 1279 | 381 | 648 |
| 25 | 49 47 25·6 | 2 | 8 | − 9·450 | + 0·527 | + 0·025 | 1291 | 386 | 660 |
| 26 | 74 52 12·6 | 9 | 121 | − 9·287 | + 0·443 | + 0·044 | 1302 | 388 | 664 |
| 27 | 62 54 29·5 | 8 | 41 | − 8·970 | + 0·484 | + 0·105 | 1326 | 398 | 681 |
| 28 | 72 19 10·9 | 3 | 14 | − 8·535 | + 0·460 | ... | 1365 | 413 | 703 |
| 29 | 74 2 30·0 | 2 | 8 | − 8·126 | + 0·460 | + 0·050 | 1391 | 422 | ... |
| 30 | 74 22 50·9 | 1 | 5 | − 8·021 | + 0·460 | + 0·070 | 1402 | 425 | ... |
| 31 | 61 35 41·4 | 7 | 115 | − 7·303 | + 0·512 | + 0·040 | 1444 | 440 | 750 |
| 32 | 67 15 3·1 | 18 | 181 | − 7·206 | + 0·492 | + 0·022 | 1449 | 441 | 754 |
| 33 | 79 3 20·4 | 12 | 45 | − 6·986 | + 0·456 | + 0·035 | 1460 | ... | 761 |
| 34 | 52 42 11·9 | 4 | 18 | − 6·641 | + 0·558 | 0·000 | 1476 | 447 | 776 |
| 35 | 74 17 7·7 | 2 | 96 | − 6·565 | + 0·475 | + 0·080 | 1485 | ... | ... |

* Brought up to date from the Greenwich Catalogue of 1880.

| No. | Name of Star | Mag. | Mean Right Ascension Jan. 1, 1892 | Nautical Almanac Comparison Star | No. of Observations | Annual Precession | Secular Variation | Proper Motion |
|---|---|---|---|---|---|---|---|---|
| | | | h m s | | | s | s | s |
| 36 | 2 Aurigæ . . | 5·0 | 4 45 24·063 | ι Aurigæ | 10 | + 4·0106 | + 0·0168 | − 0·009 |
| 37 | 3 Orionis . $\pi^3$ | 4·0 | 4 45 27·226 | μ Eridani | 8 | + 3·1928 | + 0·0067 | + 0·005 |
| 38 | 5 Orionis . . | 5·7 | 4 47 44·770 | ι Aurigæ | 12 | + 3·1243 | + 0·0061 | + 0·001 |
| 39 | 98 Tauri . . *k* | 5·7 | 4 51 32·666 | ,, | 10 | + 3·6652 | + 0·0109 | − 0·006 |
| 40 | 4 Aurigæ . . | 5·1 | 4 51 55·375 | ,, | 24 | + 4·0615 | + 0·0163 | − 0·003 |
| 41 | 102 Tauri . . ι | 4·7 | 4 56 38·311 | ι Aurigæ | 12 | + 3·5775 | + 0·0094 | 0·000 |
| 42 | 10 Aurigæ . η | 3·3 | 4 58 56·311 | ,, | 10 | + 4·1972 | + 0·0166 | − 0·003 |
| 43 | 15 Orionis . . | 4·8 | 5 3 31·184 | β Tauri | 14 | + 3·4311 | + 0·0073 | + 0·008 |
| 44 | 11 Aurigæ . μ | 4·9 | 5 6 2·346 | ,, | 14 | + 4·1013 | + 0·0136 | + 0·003 |
| 45 | 18 Orionis . . | 5·6 | 5 10 4·191 | ,, | 14 | + 3·3315 | + 0·0060 | ... |
| 46 | Piazzi V. 26 . | 5·3 | 5 11 53·684 | β Tauri | 24 | + 3·9424 | + 0·0107 | ... |
| 47 | 109 Tauri . . *n* | 5·2 | 5 12 47·363 | ,, | 38 | + 3·6009 | + 0·0076 | + 0·005 |
| 48 | Piazzi V. 41 . | 6·5 | 5 14 12·536 | ,, | 34 | + 3·7648 | + 0·0087 | + 0·002 |
| 49 | 21 Aurigæ . σ | 5·2 | 5 17 18·914 | ,, | 44 | + 4·0728 | + 0·0108 | + 0·009 |
| 50 | Piazzi V. 63 . | 5·9 | 5 17 41·018 | ,, | 10 | + 3·8635 | + 0·0089 | ... |
| 51 | 111 Tauri . . . | 5·2 | 5 18 7·441 | β Tauri | 14 | + 3·4816 | + 0·0062 | + 0·024 |
| 52 | 115 Tauri . . . | 5·5 | 5 20 52·174 | ,, | 24 | + 3·4973 | + 0·0060 | + 0·005 |
| 53 | 116 Tauri . . . | 6·0 | 5 21 33·373 | ,, | 36 | + 3·4451 | + 0·0056 | + 0·004 |
| 54 | 25 Aurigæ . χ | 5·0 | 5 25 41·995 | ,, | 12 | + 3·9022 | + 0·0078 | + 0·005 |
| 55 | 121 Tauri . . . | 5·4 | 5 28 51·490 | ,, | 12 | + 3·6614 | + 0·0059 | + 0·009 |
| 56 | 128 Tauri . . . | 6·0 | 5 38 39·888 | ε Orionis | 8 | + 3·4553 | + 0·0039 | − 0·001 |
| 57 | 129 Tauri . . . | 6·0 | 5 40 32·796 | ,, | 8 | + 3·4490 | + 0·0038 | − 0·002 |
| 58 | 132 Tauri . . . | 5·6 | 5 42 23·199 | ,, | 8 | + 3·6809 | + 0·0041 | − 0·004 |
| 59 | 139 Tauri . . . | 5·1 | 5 51 17·632 | ν Orionis | 12 | + 3·7224 | + 0·0029 | + 0·002 |
| 60 | * B.F. 817 . . | 6·0 | 5 52 48·673 | ,, | 14 | + 3·3761 | + 0·0024 | 0·000 |
| 61 | 141 Tauri . . . | 6·7 | 5 55 10·611 | ν Orionis | 14 | + 3·6234 | + 0·0023 | + 0·020 |
| 62 | 1 Geminorum . | 4·3 | 5 57 33·378 | ,, | 10 | + 3·6474 | + 0·0020 | ... |
| 63 | 40 Aurigæ . . | 6·0 | 5 59 8·424 | ,, | 22 | + 4·1357 | + 0·0016 | + 0·001 |
| 64 | 3 Geminorum . | 6·5 | 6 3 10·538 | ,, and μ Gem. | 96 | + 3·6436 | + 0·0012 | + 0·002 |
| 65 | 68 Orionis . . | 6·0 | 6 5 37·549 | μ Geminorum | 54 | + 3·5541 | + 0·0010 | 0·000 |
| 66 | 6 Geminorum . | 6·7 | 6 5 46·325 | μ Gem. and ν Orionis | 22 | + 3·6380 | + 0·0009 | + 0·004 |
| 67 | 71 Orionis . . | 5·1 | 6 8 29·654 | ν Orionis | 14 | + 3·5376 | + 0·0007 | − 0·006 |
| 68 | 44 Aurigæ . κ | 4·5 | 6 8 29·849 | μ Gem. and ν Orionis | 26 | + 3·8296 | + 0·0002 | − 0·002 |
| 69 | Bradley 918. | 7·0 | 6 11 40·313 | η Gem. and μ Gem. | 50 | + 4·0162 | − 0·0009 | + 0·005 |
| 70 | 15 Geminorum . | 7·0 | 6 21 20·379 | γ Gem. ,, | 26 | + 3·5797 | − 0·0009 | − 0·002 |

* Baily's Edition of Flamsteed's Catalogue.

| No. | Mean North Polar Distance Jan. 1, 1892 | No. of Stations of Observation | Total No. of Observations | Annual Precession | Secular Variation | Proper Motion | Number in | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | B.A.C. | Gr. Cat. 1872 | Gr. Cat. 1880 |
| | ° ′ ″ | | | ″ | ″ | ″ | | | |
| 36 | 53 28 48·4 | 5 | 22 | − 6·413 | + 0·557 | + 0·024 | 1492 | 450 | 787 |
| 37 | 84 34 48·6 | 1 | 4 | − 6·408 | + 0·444 | + 0·002 | 1495 | ... | 789 |
| 38 | 87 40 15·4* | ... | ... | − 6·218 | + 0·436 | + 0·014 | 1508 | ... | 796 |
| 39 | 65 7 1·4 | 9 | 121 | − 5·901 | + 0·513 | + 0·063 | 1528 | 460 | 808 |
| 40 | 52 16 26·0 | 3 | 14 | − 5·869 | + 0·569 | + 0·131 | 1530 | ... | 809 |
| 41 | 68 33 53·9 | 12 | 133 | − 5·474 | + 0·504 | + 0·050 | 1551 | 468 | 823 |
| 42 | 48 54 44·7 | 22 | 170 | − 5·280 | + 0·593 | + 0·105 | 1558 | 471 | 828 |
| 43 | 74 32 27·7 | 4 | 104 | − 4·892 | + 0·487 | 0·000 | 1591 | 480 | 846 |
| 44 | 51 38 40·3 | 4 | 20 | − 4·678 | + 0·583 | + 0·125 | 1602 | 482 | 851 |
| 45 | 78 46 51·0* | ... | ... | − 4·334 | + 0·476 | − 0·003 | 1624 | ... | 869 |
| 46 | 56 22 1·4* | ... | ... | − 4·178 | + 0·564 | + 0·030 | 1632 | ... | 874 |
| 47 | 68 0 57·8 | 7 | 15 | − 4·102 | + 0·516 | + 0·125 | 1637 | 495 | 877 |
| 48 | 62 9 10·3 | 6 | 20 | − 3·980 | + 0·540 | + 0·007 | 1648 | 498 | 879 |
| 49 | 52 42 58·9 | 5 | 21 | − 3·713 | + 0·585 | 0·000 | 1663 | 499 | 888 |
| 50 | 58 57 28·5 | 2 | 100 | − 3·682 | + 0·555 | 0·000 | 1669 | ... | 890 |
| 51 | 72 43 3·1* | ... | ... | − 3·644 | + 0·501 | − 0·006 | 1671 | 500 | 892 |
| 52 | 72 7 51·1 | 4 | 18 | − 3·407 | + 0·504 | − 0·020 | 1692 | ... | ... |
| 53 | 74 13 3·4 | 3 | 12 | − 3·348 | + 0·497 | + 0·014 | 1701 | 513 | ... |
| 54 | 57 53 18·8 | 26 | 269 | − 2·990 | + 0·564 | + 0·013 | 1723 | 518 | 915 |
| 55 | 66 1 59·6 | 8 | 34 | − 2·716 | + 0·530 | + 0·070 | 1742 | 525 | 927 |
| 56 | 73 57 42·3 | 6 | 23 | − 1·864 | + 0·502 | + 0·088 | 1810 | 544 | ... |
| 57 | 74 13 12·7 | 9 | 113 | − 1·700 | + 0·502 | 0·000 | 1821 | ... | ... |
| 58 | 65 28 10·1 | 7 | 29 | − 1·539 | + 0·536 | + 0·053 | 1837 | 551 | ... |
| 59 | 64 3 36·9 | 7 | 112 | − 0·762 | + 0·543 | + 0·030 | 1896 | 569 | 1010 |
| 60 | 77 12 10·4 | 2 | 7 | − 0·629 | + 0·492 | + 0·041 | 1907 | 572 | ... |
| 61 | 67 36 9·7 | 2 | 8 | − 0·422 | + 0·528 | + 0·033 | 1925 | ... | 1021 |
| 62 | 66 43 53·4 | 34 | 221 | − 0·214 | + 0·532 | + 0·104 | 1938 | 579 | 1026 |
| 63 | 51 30 28·6 | 1 | 3 | − 0·075 | + 0·603 | ... | 1942 | 580 | ... |
| 64 | 66 52 10·8 | 12 | 127 | + 0·278 | + 0·531 | − 0·006 | 1971 | 589 | 1043 |
| 65 | 70 11 9·6 | 3 | 13 | + 0·492 | + 0·518 | ... | 1986 | 592 | ... |
| 66 | 67 4 4·0 | 4 | 8 | + 0·505 | + 0·530 | + 0·017 | 1987 | 593 | 1052 |
| 67 | 70 48 28·8 | 1 | 8 | + 0·743 | + 0·515 | + 0·205 | 2004 | 602 | 1059 |
| 68 | 60 27 46·3 | 36 | 296 | + 0·743 | + 0·558 | + 0·270 | 2001 | 601 | 1058 |
| 69 | 54 45 4·5 | 1 | 4 | + 1·021 | + 0·584 | + 0·040 | 2021 | 608 | 1065 |
| 70 | 69 8 42·0 | 9 | 22 | + 1·864 | + 0·519 | + 0·061 | 2080 | 618 | 1098 |

* Brought up to date from the Greenwich Catalogue of 1880.

| No. | Name of Star | Mag. | Mean Right Ascension Jan. 1, 1892 | Nautical Almanac Comparison Star | No. of Observations | Annual Precession | Secular Variation | Proper Motion |
|---|---|---|---|---|---|---|---|---|
| | | | *h m s* | | | *s* | *s* | *s* |
| 71 | 48 Aurigæ . . | 5·2 | 6 21 37·702 | $\mu$ Geminorum | 46 | + 3·8584 | − 0·0022 | + 0·006 |
| 72 | 18 Geminorum $\nu$ | 4·0 | 6 22 33·078 | ,, | 2 | + 3·5642 | − 0·0010 | ... |
| 73 | Piazzi VI. 114 | 6·8 | 6 23 33·270 | $\gamma$ Gem. and $\mu$ Gem. | 48 | + 3·7881 | − 0·0022 | + 0·009 |
| 74 | Piazzi VI. 126 | 6·0 | 6 25 24·454 | $\mu$ Geminorum | 38 | + 3·9200 | − 0·0032 | + 0·005 |
| 75 | 49 Aurigæ . . | 4·9 | 6 28 24·005 | $\gamma$ Gem. and $\mu$ Gem. | 18 | + 3·7811 | − 0·0029 | + 0·001 |
| 76 | Groom. 1190. | 6·7 | 6 29 7·476 | $\mu$ Geminorum | 22 | + 4·1286 | − 0·0053 | + 0·006 |
| 77 | 51 Aurigæ . . | 5·7 | 6 31 10·633 | ,, | 10 | + 4·1639 | − 0·0060 | + 0·002 |
| 78 | 54 Aurigæ . . | 5·7 | 6 32 44·440 | $\gamma$ Geminorum | 18 | + 3·7868 | − 0·0036 | − 0·004 |
| 79 | 27 Geminorum $\epsilon$ | 3·2 | 6 37 17·268 | $\gamma$ Gem. and $\xi$ Gem. | 40 | + 3·6944 | − 0·0037 | + 0·003 |
| 80 | 17 Monocerotis . | 5·0 | 6 41 27·975 | $\gamma$ Geminorum | 16 | + 3·2610 | − 0·0014 | 0·000 |
| 81 | 59 Aurigæ . . | 6·7 | 6 45 35·637 | $\gamma$ Geminorum | 16 | + 4·1337 | − 0·0092 | ... |
| 82 | 38 Geminorum $e$ | 4·8 | 6 48 33·189 | $\xi$ Geminorum | 16 | + 3·3819 | − 0·0027 | + 0·010 |
| 83 | 40 Geminorum . | 6·7 | 6 52 47·947 | $\gamma$ Canis Majoris | 10 | + 3·7091 | − 0·0060 | + 0·003 |
| 84 | 42 Geminorum $\omega$ | 5·3 | 6 55 50·074 | ,, | 12 | + 3·6603 | − 0·0060 | + 0·005 |
| 85 | 45 Geminorum . | 5·6 | 7 2 10·539 | ,, | 12 | + 3·4444 | − 0·0045 | + 0·004 |
| 86 | 46 Geminorum $\tau$ | 4·6 | 7 4 15·961 | $\delta$ Geminorum | 12 | + 3·8269 | − 0·0091 | − 0·001 |
| 87 | 48 Geminorum . | 5·8 | 7 5 52·659 | ,, | 12 | + 3·6517 | − 0·0072 | − 0·002 |
| 88 | 51 Geminorum . | 5·4 | 7 7 10·195 | ,, | 12 | + 3·4479 | − 0·0049 | + 0·001 |
| 89 | 52 Geminorum . | 6·3 | 7 8 5·656 | ,, | 8 | + 3·6706 | − 0·0077 | + 0·002 |
| 90 | 54 Geminorum $\lambda$ | 3·6 | 7 11 53·177 | ,, | 12 | + 3·4549 | − 0·0056 | − 0·010 |
| 91 | 65 Aurigæ. . . | 5·3 | 7 14 49·745 | $\delta$ Geminorum | 10 | + 4·0255 | − 0·0141 | − 0·004 |
| 92 | 66 Aurigæ. . . | 6·0 | 7 16 39·831 | ,, | 10 | + 4·1657 | − 0·0172 | + 0·003 |
| 93 | 57 Geminorum A | 5·0 | 7 16 53·391 | $\beta$ Canis Minoris | 8 | + 3·6682 | − 0·0088 | − 0·011 |
| 94 | 1 Canis Minoris | 5·4 | 7 18 58·320 | $\beta$ Gem. & $\beta$ Can. Min. | 10 | + 3·3373 | − 0·0049 | 0·000 |
| 95 | 60 Geminorum $\iota$ | 4·0 | 7 19 1·170 | $\delta$ Geminorum | 22 | + 3·7419 | − 0·0102 | − 0·007 |
| 96 | 63 Geminorum . | 5·3 | 7 21 19·786 | $\beta$ Geminorum | 2 | + 3·5706 | − 0·0080 | − 0·004 |
| 97 | 62 Geminorum $\rho$ | 4·2 | 7 22 9·932 | $\delta$ Geminorum | 10 | + 3·8548 | − 0·0127 | + 0·013 |
| 98 | 65 Geminorum $b^2$ | 5·1 | 7 23 5·713 | $\beta$ Canis Minoris | 12 | + 3·7411 | − 0·0108 | − 0·004 |
| 99 | Piazzi VII. 114 | 6·0 | 7 23 56·886 | ,, | 12 | + 3·7402 | − 0·0110 | + 0·003 |
| 100 | 69 Geminorum $\nu$ | 4·2 | 7 29 16·037 | ,, | 4 | + 3·7064 | − 0·0112 | − 0·005 |
| 101 | Piazzi VII. 179 | 7·0 | 7 36 56·252 | $\beta$ Canis Minoris | 12 | + 3·5814 | − 0·0100 | − 0·003 |
| 102 | 11 Canis Minoris | 5·6 | 7 40 19·754 | $\beta$ Geminorum | 12 | + 3·3086 | − 0·0060 | + 0·007 |
| 103 | 83 Geminorum $\phi$ | 4·9 | 7 46 53·144 | 6 Cancri | 42 | + 3·6822 | − 0·0132 | − 0·009 |
| 104 | 85 Geminorum . | 5·3 | 7 49 21·659 | ,, | 40 | + 3·5088 | − 0·0101 | − 0·006 |
| 105 | 1 Cancri . . . | 5·9 | 7 50 51·503 | ,, and $\beta$ Gem. | 44 | + 3·4137 | − 0·0085 | − 0·005 |

| No. | Mean North Polar Distance Jan. 1, 1892 | No. of Stations of Observation | Total No. of Observations | Annual Precession | Secular Variation | Proper Motion | Number in | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | B.A.C. | Gr. Cat. 1872 | Gr. Cat. 1880 |
| | ° ′ ″ | | | ″ | ″ | ″ | | | |
| 71 | 59 26 27·1 | 2 | 100 | + 1·890 | + 0·559 | + 0·007 | 2082 | 620 | 1099 |
| 72 | 69 43 12·3 | 23 | 71 | + 1·970 | + 0·516 | 0·000 | 2090 | 623 | 1104 |
| 73 | 61 43 2·3 | 4 | 10 | + 2·057 | + 0·549 | + 0·100 | 2097 | 626 | 1108 |
| 74 | 57 28 7·6 | 3 | 10 | + 2·219 | + 0·567 | ... | 2110 | 628 | 1110 |
| 75 | 61 53 38·6 | 2 | 10 | + 2·479 | + 0·546 | + 0·015 | 2133 | 635 | 1127 |
| 76 | 51 28 2·1 | 3 | 13 | + 2·541 | + 0·596 | − 0·110 | 2139 | 636 | ... |
| 77 | 50 30 53·5 | 1 | 6 | + 2·719 | + 0·600 | + 0·119 | 2155 | 641 | 1135 |
| 78 | 61 38 31·8 | 6 | 21 | + 2·855 | + 0·545 | + 0·028 | 2170 | 649 | 1144 |
| 79 | 64 45 45·6 | 37 | 171 | + 3·248 | + 0·530 | + 0·027 | 2194 | 652 | 1159 |
| 80 | 81 50 49·2 | 2 | 4 | + 3·608 | + 0·466 | 0·000 | 2216 | 659 | 1173 |
| 81 | 51 0 9·7 | 1 | 4 | + 3·963 | + 0·589 | 0·000 | 2235 | 663 | ... |
| 82 | 76 41 7·7 | 1 | 3 | + 4·217 | + 0·480 | + 0·071 | 2255 | 669 | 1184 |
| 83 | 63 56 23·8 | 4 | 10 | + 4·579 | + 0·525 | + 0·061 | 2278 | 679 | ... |
| 84 | 65 37 52·1 | 7 | 24 | + 4·837 | + 0·516 | − 0·022 | 2299 | 682 | 1197 |
| 85 | 73 53 51·0 | 10 | 36 | + 5·374 | + 0·482 | + 0·157 | 2330 | 690 | 1218 |
| 86 | 59 34 42·7 | 21 | 225 | + 5·550 | + 0·534 | + 0·066 | 2340 | 693 | 1221 |
| 87 | 65 41 29·2 | 28 | 105 | + 5·685 | + 0·508 | + 0·057 | 2350 | 697 | 1227 |
| 88 | 73 39 30·3 | 4 | 12 | + 5·793 | + 0·479 | + 0·073 | 2362 | 698 | 1233 |
| 89 | 64 55 41·3 | 1 | 2 | + 5·871 | + 0·509 | + 0·105 | 2364 | 700 | 1237 |
| 90 | 73 15 55·2 | 14 | 55 | + 6·187 | + 0·477 | + 0·035 | 2398 | 706 | 1250 |
| 91 | 53 2 13·8 | 5 | 20 | + 6·432 | + 0·553 | + 0·055 | 2416 | 714 | 1261 |
| 92 | 49 7 13·5 | 1 | 4 | + 6·583 | + 0·571 | ... | 2429 | 718 | ... |
| 93 | 64 44 33·9 | 1 | 4 | + 6·602 | + 0·502 | + 0·056 | 2431 | 719 | 1265 |
| 94 | 78 7 10·9 | 1 | 4 | + 6·774 | + 0·455 | + 0·056 | 2444 | 725 | 1272 |
| 95 | 61 59 16·8 | 27 | 146 | + 6·778 | + 0·511 | + 0·109 | 2442 | 724 | 1271 |
| 96 | 68 20 4·0 | 9 | 30 | + 6·968 | + 0·485 | + 0·108 | 2460 | 727 | 1281 |
| 97 | 58 0 5·4 | 8 | 133 | + 7·036 | + 0·523 | − 0·157 | 2464 | 729 | 1284 |
| 98 | 61 51 42·4 | 8 | 36 | + 7·112 | + 0·507 | + 0·045 | 2469 | 733 | 1289 |
| 99 | 61 51 (...) | 1 | 3 | + 7·182 | + 0·506 | ... | 2472 | 734 | ... |
| 100 | 62 51 53·2 | 22 | 77 | + 7·615 | + 0·497 | + 0·129 | 2493 | 742 | 1303 |
| 101 | 67 20 45·0 | 2 | 96 | + 8·231 | + 0·473 | − 0·070 | 2544 | ... | ... |
| 102 | 78 58 7·4 | 1 | 4 | + 8·501 | + 0·433 | ... | 2564 | 764 | ... |
| 103 | 62 57 19·3 | 23 | 108 | + 9·017 | + 0·476 | + 0·056 | 2617 | 774 | 1343 |
| 104 | 69 49 54·0 | 2 | 8 | + 9·210 | + 0·451 | + 0·070 | 2632 | ... | 1349 |
| 105 | 73 55 18·7 | 23 | 96 | + 9·326 | + 0·437 | + 0·068 | 2639 | 777 | 1350 |

| No. | Name of Star | Mag. | Mean Right Ascension Jan. 1, 1892 | Nautical Almanac Comparison Star | No. of Obser-vations | Annual Precession | Secular Variation | Proper Motion |
|---|---|---|---|---|---|---|---|---|
| | | | h m s | | | s | s | s |
| 106 | 2 Cancri . . $\omega^1$ | 5·9 | 7 54 23·640 | 6 Cancri | 10 | + 3·6372 | − 0·0132 | − 0·007 |
| 107 | 3 Cancri . . . | 6·0 | 7 54 35·886 | „ | 38 | + 3·4448 | − 0·0094 | − 0·006 |
| 108 | 8 Cancri . . . | 6·0 | 7 59 3·479 | „ | 12 | + 3·3496 | − 0·0080 | − 0·005 |
| 109 | 9 Cancri . . $\mu^1$ | 6·2 | 7 59 54·462 | „ | 34 | + 3·5628 | − 0·0123 | + 0·003 |
| 110 | 10 Cancri . . $\mu^2$ | 5·3 | 8 1 24·464 | „ | 36 | + 3·5362 | − 0·0119 | − 0·003 |
| 111 | 16 Cancri . . $\zeta$ | 4·7 | 8 6 1·004 | 6 Cancri | 30 | + 3·4423 | − 0·0103 | + 0·002 |
| 112 | * B.F. 1152 . . | 7·0 | 8 6 19·651 | $\beta$ Cancri | 8 | + 3·3634 | − 0·0088 | + 0·001 |
| 113 | 15 Cancri . . . | 5·6 | 8 6 27·262 | „ | 34 | + 3·7294 | − 0·0171 | + 0·001 |
| 114 | 18 Cancri . . $\chi$ | 5·1 | 8 13 30·184 | „ | 22 | + 3·6554 | − 0·0162 | − 0·007 |
| 115 | 19 Cancri . . $\lambda$ | 5·7 | 8 14 6·779 | „ | 34 | + 3·5772 | − 0·0142 | − 0·007 |
| 116 | 20 Cancri . . $d^1$ | 5·9 | 8 17 10·713 | $\beta$ Cancri | 22 | + 3·4460 | − 0·0114 | − 0·009 |
| 117 | Groom. 1433 . | 6·0 | 8 17 24·005 | „ | 24 | + 4·0787 | − 0·0300 | + 0·002 |
| 118 | 30 Cancri . . $v^3$ | 5·8 | 8 25 7·315 | $\eta$ Cancri | 18 | + 3·5625 | − 0·0151 | − 0·009 |
| 119 | Groom. 1450 . | 6·7 | 8 25 53·758 | $\beta$ Cancri | 12 | + 3·9243 | − 0·0266 | − 0·013 |
| 120 | 32 Lyncis . . . | 6·0 | 8 26 25·885 | $\gamma$ Cancri | 22 | + 3·8755 | − 0·0250 | − 0·022 |
| 121 | 33 Lyncis . . . | 6·0 | 8 27 47·452 | $\gamma$ Cancri & $\eta$ Cancri | 36 | + 3·8716 | − 0·0251 | − 0·007 |
| 122 | 35 Cancri . . . | 7·7 | 8 29 6·932 | $\eta$ Cancri | 8 | + 3·4589 | − 0·0127 | − 0·003 |
| 123 | 36 Cancri . . $c^1$ | 5·9 | 8 31 14·510 | „ | 12 | + 3·2594 | − 0·0081 | − 0·002 |
| 124 | Piaz. VIII. 134 | 7·7 | 8 34 44·517 | $\gamma$ Cancri | 24 | + 3·4516 | − 0·0131 | − 0·007 |
| 125 | 47 Cancri . . $\delta$ | 4·3 | 8 38 32·878 | „ | 8 | + 3·4181 | − 0·0125 | − 0·001 |
| 126 | 46 Cancri . . $\sigma^1$ | 6·7 | 8 38 43·803 | $\gamma$ Cancri | 6 | + 3·6930 | − 0·0209 | − 0·003 |
| 127 | 48 Cancri . . $\iota$ | 4·0 | 8 40 9·658 | $\eta$ Canc., $\gamma$ Canc. & $\epsilon$ Hyd. | 28 | + 3·6435 | − 0·0195 | − 0·003 |
| 128 | 50 Cancri . . $A^2$ | 5·8 | 8 41 0·750 | $\gamma$ Cancri | 10 | + 3·2989 | − 0·0095 | − 0·008 |
| 129 | 13 Hydræ . . $\rho$ | 4·3 | 8 42 42·726 | „ & $\epsilon$ Hydræ | 44 | + 3·1834 | − 0·0069 | − 0·003 |
| 130 | Piaz. VIII. 173 | 6·5 | 8 43 49·516 | $\gamma$ Cancri | 2 | + 3·7456 | − 0·0236 | − 0·012 |
| 131 | 51 Cancri . . . | 5·7 | 8 45 54·321 | $\gamma$ Cancri & $\epsilon$ Hydræ | 20 | + 3·7200 | − 0·0230 | + 0·005 |
| 132 | 53 Cancri . . $\rho^1$ | 6·5 | 8 45 58·939 | $\gamma$ Cancri | 16 | + 3·6200 | − 0·0195 | − 0·002 |
| 133 | 55 Cancri . . $\rho^2$ | 6·2 | 8 46 9·774 | „ | 8 | + 3·6214 | − 0·0195 | − 0·041 |
| 134 | 57 Cancri . . $\sigma^2$ | 5·5 | 8 47 39·152 | $\epsilon$ Hydræ | 18 | + 3·6701 | − 0·0215 | − 0·006 |
| 135 | 59 Cancri . . . | 5·5 | 8 50 16·470 | $\gamma$ Cancri | 2 | + 3·7200 | − 0·0237 | − 0·017 |
| 136 | * B.F. 1267 . . | 6·3 | 8 51 52·435 | $\epsilon$ Hydræ | 10 | + 3·2416 | − 0·0086 | − 0·010 |
| 137 | 64 Cancri . . . | 5·7 | 8 52 54·484 | $\gamma$ Cancri | 2 | + 3·7013 | − 0·0235 | − 0·016 |
| 138 | 10 Ursæ Majoris | 4·0 | 8 53 37·764 | $\kappa$ Cancri | 12 | + 3·9535 | − 0·0343 | − 0·040 |
| 139 | 67 Cancri . . . | 5·8 | 8 55 22·687 | „ | 12 | + 3·5923 | − 0·0198 | 0·000 |
| 140 | 69 Cancri . . $\nu$ | 5·6 | 8 56 25·438 | „ | 12 | + 3·5177 | − 0·0172 | 0·000 |

* Baily's Edition of Flamsteed's Catalogue.

| No. | Mean North Polar Distance Jan. 1, 1892 | No. of Stations of Observation | Total No. of Observations | Annual Precession | Secular Variation | Proper Motion | Number in | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | B.A.C. | Gr. Cat. 1872 | Gr. Cat. 1880 |
| | ° ′ ″ | | | ″ | ″ | ″ | | | |
| 106 | 64 18 45·3 | 15 | 73 | + 9·599 | + 0·462 | + 0·075 | 2657 | 781 | 1363 |
| 107 | 72 23 44·5 | 2 | 10 | + 9·614 | + 0·437 | + 0·025 | 2659 | 782 | 1365 |
| 108 | 76 34 28·2 | 2 | 8 | + 9·955 | + 0·420 | + 0·050 | 2690 | ... | ... |
| 109 | 67 3 25·9 | 7 | 120 | +10·019 | + 0·446 | + 0·056 | 2700 | 790 | 1378 |
| 110 | 68 6 18·8 | 14 | 50 | +10·133 | + 0·441 | + 0·087 | 2714 | 792 | 1383 |
| 111 | 72 1 39·9 | 8 | 24 | +10·479 | + 0·423 | + 0·150 | 2744 | 798 | 1395 |
| 112 | 75 40 26·6* | ... | ... | +10·502 | + 0·413 | ... | 2748 | 801 | ... |
| 113 | 60 1 12·5 | 4 | 106 | +10·511 | + 0·459 | + 0·017 | 2747 | 802 | 1397 |
| 114 | 62 25 59·1 | 20 | 95 | +11·032 | + 0·440 | + 0·375 | 2786 | 809 | 1405 |
| 115 | 65 38 17·1 | 14 | 88 | +11·076 | + 0·430 | + 0·036 | 2789 | 811 | 1407 |
| 116 | 71 19 17·5 | 17 | 60 | +11·299 | + 0·410 | + 0·030 | 2799 | 812 | 1411 |
| 117 | 47 38 54·1 | 2 | 11 | +11·315 | + 0·486 | ... | 2798 | 813 | ... |
| 118 | 65 33 18·1 | 10 | 25 | +11·866 | + 0·414 | + 0·035 | 2850 | 833 | 1432 |
| 119 | 51 36 45·9 | 1 | 2 | +11·921 | + 0·455 | ... | 2855 | 835 | ... |
| 120 | 53 11 53·4 | 2 | 9 | +11·958 | + 0·448 | ... | 2860 | 836 | ... |
| 121 | 53 12 37·1 | 1 | 3 | +12·053 | + 0·446 | ... | 2871 | 840 | ... |
| 122 | 70 2 21·0 | 1 | 2 | +12·146 | + 0·396 | + 0·094 | 2880 | 842 | 1442 |
| 123 | 79 58 10·7 | 6 | 34 | +12·293 | + 0·370 | + 0·030 | 2897 | ... | 1449 |
| 124 | 70 2 14·1† | ... | ... | +12·534 | + 0·387 | + 0·004 | 2925 | ... | 1463 |
| 125 | 71 26 57·6 | 16 | 82 | +12·792 | + 0·378 | + 0·268 | 2953 | 859 | 1470 |
| 126 | 58 54 39·3 | 1 | 3 | +12·804 | + 0·409 | − 0·063 | 2952 | 860 | ... |
| 127 | 60 50 43·6 | 4 | 17 | +12·900 | + 0·401 | 0·000 | 2965 | 863 | 1474 |
| 128 | 77 29 39·9 | 2 | 48 | +12·957 | + 0·362 | + 0·095 | 2970 | ... | 1476 |
| 129 | 83 45 49·7 | 1 | 8 | +13·071 | + 0·346 | + 0·070 | 2978 | ... | 1480 |
| 130 | 56 18 42·7 | 1 | 4 | +13·144 | + 0·407 | + 0·090 | 2984 | ... | ... |
| 131 | 57 7 17·8 | 1 | 4 | +13·281 | + 0·401 | 0·000 | 2999 | 867 | 1483 |
| 132 | 61 20 10·1 | 11 | 27 | +13·286 | + 0·390 | + 0·065 | 3000 | 868 | 1484 |
| 133 | 61 15 24·8 | 20 | 150 | +13·298 | + 0·390 | + 0·230 | 3002 | ... | 1486 |
| 134 | 59 0 42·1 | 3 | 14 | +13·395 | + 0·393 | 0·000 | 3016 | 871 | 1490 |
| 135 | 56 40 25·8 | 3 | 12 | +13·565 | + 0·394 | 0·000 | 3033 | 874 | 1495 |
| 136 | 80 11 46·6 | 1 | 3 | +13·668 | + 0·340 | ... | 3053 | 876 | 1502 |
| 137 | 57 9 44·7 | 1 | 4 | +13·734 | + 0·387 | + 0·100 | 3056 | 879 | 1505 |
| 138 | 47 47 24·3 | 2 | 11 | +13·780 | + 0·413 | + 0·270 | 3059 | ... | ... |
| 139 | 61 40 20·9† | ... | ... | +13·891 | + 0·372 | + 0·094 | 3069 | ... | 1508 |
| 140 | 65 7 21·4 | 12 | 46 | +13·957 | + 0·362 | + 0·035 | 3079 | 881 | 1511 |

* Brought up to date from the Greenwich Catalogue of 1872.
† " " " 1880.

| No. | Name of Star | Mag. | Mean Right Ascension Jan. 1, 1892 | Nautical Almanac Comparison Star | No. of Observations | Annual Precession | Secular Variation | Proper Motion |
|---|---|---|---|---|---|---|---|---|
| | | | h m s | | | s | s | s |
| 141 | Piaz. VIII. 245 | 4·7 | 8 59 39·554 | κ Cancri | 24 | + 3·8360 | − 0·0304 | − 0·003 |
| 142 | 77 Cancri . . ξ | 5·2 | 9 3 8·883 | 83 Cancri | 16 | + 3·4584 | − 0·0159 | − 0·006 |
| 143 | 79 Cancri . . . | 6·5 | 9 4 8·535 | ,, & κ Cancri | 32 | + 3·4558 | − 0·0159 | − 0·003 |
| 144 | 80 Cancri . . . | 6·8 | 9 5 52·969 | κ Cancri | 20 | + 3·3804 | − 0·0134 | − 0·004 |
| 145 | 81 Cancri . . $\pi^1$ | 7·0 | 9 6 22·884 | 83 Cancri | 12 | + 3·3262 | − 0·0117 | − 0·041 |
| 146 | Bradley 1299. | 6·5 | 9 7 27·105 | 83 Cancri & κ Cancri | 38 | + 3·4369 | − 0·0155 | − 0·004 |
| 147 | 19 Ursæ Majoris. | 6·3 | 9 8 36·411 | ,, ,, | 28 | + 3·7110 | − 0·0266 | − 0·015 |
| 148 | 82 Cancri . . $\pi^2$ | 5·6 | 9 9 16·034 | 83 Cancri | 20 | + 3·3220 | − 0·0117 | − 0·003 |
| 149 | 23 Hydræ . . . | 5·4 | 9 11 19·799 | ,, | 14 | + 2·9798 | − 0·0024 | − 0·004 |
| 150 | 38 Lyncis . . . | 3·8 | 9 12 7·366 | κ Cancri | 12 | + 3·7527 | − 0·0292 | − 0·002 |
| 151 | 40 Lyncis . . α | 3·4 | 9 14 28·484 | 83 Canc. & κ Canc. | 18 | + 3·6879 | − 0·0267 | − 0·018 |
| 152 | Piazzi IX. 60. | 6·4 | 9 17 16·764 | ,, ,, | 26 | + 3·4909 | − 0·0185 | − 0·014 |
| 153 | 1 Leonis . . κ | 4·6 | 9 18 21·828 | 83 Cancri | 16 | + 3·5075 | − 0·0194 | − 0·003 |
| 154 | 7 Leonis Min. . | 6·7 | 9 24 11·550 | ϵ Leonis | 10 | + 3·6423 | − 0·0262 | − 0·004 |
| 155 | 4 Leonis . . λ | 4·4 | 9 25 33·353 | 83 Canc. & o Leonis | 26 | + 3·4344 | − 0·0171 | − 0·011 |
| 156 | 9 Leonis Min. . | 6·0 | 9 26 52·567 | ϵ Leonis | 12 | + 3·6959 | − 0·0295 | − 0·001 |
| 157 | 33 Hydræ . . . | 5·7 | 9 29 9·295 | o Leonis | 12 | + 2·9948 | − 0·0023 | + 0·001 |
| 158 | Piazzi IX. 124 | 6·5 | 9 30 18·263 | ,, | 12 | + 3·5733 | − 0·0240 | − 0·004 |
| 159 | 8 Leonis . . . | 5·9 | 9 31 5·012 | ϵ Leo., 83 Canc. & o Leo. | 40 | + 3·3187 | − 0·0129 | − 0·004 |
| 160 | 9 Leonis . . . | 6·5 | 9 31 38·983 | o Leonis | 12 | + 3·4512 | − 0·0185 | − 0·015 |
| 161 | Piazzi IX. 135 | 6·5 | 9 32 51·029 | o Leonis | 14 | + 3·3765 | − 0·0153 | − 0·004 |
| 162 | 35 Hydræ . . ι | 4·2 | 9 34 20·382 | ,, | 14 | + 3·0636 | − 0·0040 | 0·000 |
| 163 | 13 Leonis . . . | 6·5 | 9 35 25·617 | μ Leonis & ϵ Leonis | 22 | + 3·4641 | − 0·0195 | − 0·005 |
| 164 | 15 Leonis . . f | 5·9 | 9 37 13·330 | o Leonis ,, | 24 | + 3·5315 | − 0·0230 | − 0·006 |
| 165 | 16 Leonis . . ψ | 5·7 | 9 37 51·028 | ϵ Leonis | 8 | + 3·2738 | − 0·0115 | 0·000 |
| 166 | Piazzi IX. 176 | Var. | 9 41 44·936 | π Leonis | 2 | + 3·2328 | − 0·0100 | − 0·002 |
| 167 | 4 Sextantis . . | 6·0 | 9 44 52·920 | ϵ Leonis | 8 | + 3·1357 | − 0·0063 | − 0·011 |
| 168 | 26 Leonis . . . | 7·0 | 9 52 19·420 | α Leonis | 10 | + 3·2718 | − 0·0121 | − 0·005 |
| 169 | 27 Leonis . . ν | 5·3 | 9 52 24·836 | π Leonis | 26 | + 3·2352 | − 0·0105 | − 0·001 |
| 170 | Piazzi IX. 230 | 5·7 | 9 56 47·645 | ,, & α Leonis | 32 | + 3·3557 | − 0·0165 | − 0·001 |
| 171 | Piazzi IX. 240 | 7·0 | 9 59 49·348 | α Leonis | 10 | + 3·2681 | − 0·0123 | − 0·004 |
| 172 | 21 Leonis Min. . | 4·6 | 10 1 3·518 | π Leonis | 14 | + 3·5503 | − 0·0284 | + 0·002 |
| 173 | 30 Leonis . . η | 3·6 | 10 1 26·590 | α Leonis | 10 | + 3·2784 | − 0·0129 | − 0·006 |
| 174 | 33 Leonis . . . | 7·0 | 10 4 52·387 | ,, | 8 | + 3·2601 | − 0·0122 | − 0·011 |
| 175 | 34 Leonis . . . | 6·7 | 10 5 49·730 | ,, | 22 | + 3·2305 | − 0·0108 | + 0·002 |

| No. | Mean North Polar Distance Jan. 1, 1892 | No. of Stations of Observation | Total No. of Observations | Annual Precession | Secular Variation | Proper Motion | Number in | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | B.A.C. | Gr. Cat. 1872 | Gr. Cat. 1880 |
| | ° ′ ″ | | | ″ | ″ | ″ | | | |
| 141 | 51 7 0·5 | 6 | 74 | + 14·158 | + 0·390 | + 0·050 | 3097 | 883 | 1516 |
| 142 | 67 31 5·1 | 15 | 65 | + 14·373 | + 0·345 | 0·000 | 3117 | 889 | 1524 |
| 143 | 67 33 55·4 | 2 | 8 | + 14·433 | + 0·344 | 0·000 | 3123 | 891 | 1529 |
| 144 | 71 30 49·8 | 7 | 18 | + 14·539 | + 0·333 | + 0·008 | 3129 | 894 | 1532 |
| 145 | 74 34 6·1 | 1 | 2 | + 14·569 | + 0·327 | − 0·305 | 3132 | ... | 1533 |
| 146 | 68 16 20·6 | 16 | 66 | + 14·633 | + 0·336 | + 0·045 | 3138 | 895 | 1536 |
| 147 | 54 55 15·5 | 2 | 54 | + 14·702 | + 0·362 | − 0·070 | 3144 | 896 | 1539 |
| 148 | 74 36 39·4 | 6 | 45 | + 14·741 | + 0·322 | + 0·035 | 3147 | 897 | 1541 |
| 149 | 95 54 9·5 | 2 | 8 | + 14·863 | + 0·285 | − 0·040 | 3160 | ... | 1543 |
| 150 | 52 44 26·2 | 4 | 22 | + 14·909 | + 0·360 | + 0·114 | 3162 | 900 | 1546 |
| 151 | 55 9 3·5 | 6 | 25 | + 15·046 | + 0·349 | − 0·040 | 3178 | 902 | 1550 |
| 152 | 64 21 21·5* | ... | ... | + 15·207 | + 0·325 | − 0·010 | 3194 | ... | 1554 |
| 153 | 63 21 11·2 | 31 | 149 | + 15·269 | + 0·325 | + 0·045 | 3204 | 906 | 1555 |
| 154 | 55 52 11·9 | 8 | 31 | + 15·595 | + 0·327 | + 0·050 | 3238 | 915 | 1567 |
| 155 | 66 33 21·5 | 26 | 101 | + 15·669 | + 0·306 | + 0·015 | 3246 | 918 | 1571 |
| 156 | 53 2 5·1 | 1 | 2 | + 15·741 | + 0·327 | ... | 3252 | ... | ... |
| 157 | 95 25 59·3 | 1 | 4 | + 15·864 | + 0·260 | + 0·045 | 3271 | ... | 1581 |
| 158 | 58 21 16·4 | 1 | 2 | + 15·925 | + 0·310 | + 0·020 | 3273 | ... | ... |
| 159 | 73 4 42·7 | 11 | 35 | + 15·966 | + 0·286 | 0·000 | 3278 | 923 | 1583 |
| 160 | 64 50 41·3 | 6 | 20 | + 15·996 | + 0·297 | + 0·039 | 3285 | 924 | 1585 |
| 161 | 69 12 56·1 | 6 | 16 | + 16·060 | + 0·288 | − 0·048 | 3292 | 927 | 1589 |
| 162 | 90 39 9·4 | 1 | 3 | + 16·137 | + 0·258 | + 0·045 | 3303 | ... | 1592 |
| 163 | 63 35 47·3 | 1 | 4 | + 16·194 | + 0·291 | + 0·100 | 3309 | 929 | 1595 |
| 164 | 59 31 45·0 | 1 | 3 | + 16·286 | + 0·293 | + 0·095 | 3317 | 933 | 1599 |
| 165 | 75 29 4·7 | 5 | 24 | + 16·318 | + 0·271 | + 0·064 | 3321 | 936 | 1603 |
| 166 | 78 4 12·9 | 13 | 31 | + 16·514 | + 0·260 | + 0·025 | 3345 | ... | 1614 |
| 167 | 85 9 4·5 | 4 | 12 | + 16·668 | + 0·247 | + 0·100 | 3359 | ... | ... |
| 168 | 74 15 49·7 | 2 | 12 | + 17·021 | + 0·245 | + 0·010 | 3404 | ... | ... |
| 169 | 77 2 25·7 | 21 | 86 | + 17·025 | + 0·242 | + 0·048 | 3406 | 948 | 1632 |
| 170 | 67 31 48·1 | 5 | 12 | + 17·224 | + 0·243 | − 0·070 | 3423 | 952 | 1638 |
| 171 | 73 42 58·0 | 1 | 24 | + 17·358 | + 0·231 | − 0·100 | 3443 | ... | ... |
| 172 | 54 13 45·3 | 15 | 90 | + 17·412 | + 0·249 | + 0·021 | 3446 | 954 | 1646 |
| 173 | 72 42 39·4 | 11 | 38 | + 17·429 | + 0·229 | 0·000 | 3453 | 955 | 1648 |
| 174 | 73 45 44·1 | 1 | 22 | + 17·575 | + 0·221 | 0·000 | 3469 | 961 | ... |
| 175 | 76 6 43·4 | 15 | 79 | + 17·616 | + 0·218 | + 0·060 | 3475 | 962 | ... |

* Brought up to date from the Greenwich Catalogue of 1880.

| No. | Name of Star | Mag. | Mean Right Ascension Jan. 1, 1892 | Nautical Almanac Comparison Star | No. of Observations | Annual Precession | Secular Variation | Proper Motion |
|---|---|---|---|---|---|---|---|---|
| | | | h m s | | | s | s | s |
| 176 | 22 Leonis Min. . | 6·6 | 10 8 54·157 | $\alpha$ Leonis | 20 | + 3·4619 | − 0·0243 | − 0·006 |
| 177 | 36 Leonis . . $\zeta$ | 3·0 | 10 10 40·965 | ,, | 18 | + 3·3453 | − 0·0174 | − 0·002 |
| 178 | 40 Leonis . . . | 5·0 | 10 13 51·452 | ,, | 10 | + 3·2902 | − 0·0145 | − 0·018 |
| 179 | 30 Leonis Min. . | 5·4 | 10 19 43·376 | $\rho$ Leonis | 10 | + 3·4597 | − 0·0264 | − 0·008 |
| 180 | 45 Leonis . . . | 5·9 | 10 21 56·812 | ,, | 10 | + 3·1735 | − 0·0083 | + 0·005 |
| 181 | Piazzi X. 83 . | 6·0 | 10 23 2·100 | $\mu$ Hydræ | 12 | + 3·2186 | − 0·0110 | − 0·009 |
| 182 | 33 Leonis Min. . | 5·7 | 10 25 43·522 | $\rho$ Leonis | 14 | + 3·4188 | − 0·0248 | + 0·004 |
| 183 | 46 Leonis . . $i$ | 5·7 | 10 26 25·796 | $\mu$ Hydræ | 12 | + 3·2118 | − 0·0108 | − 0·007 |
| 184 | 49 Leonis . . . | 6·0 | 10 29 22·220 | $\rho$ Leonis | 28 | + 3·1561 | − 0·0075 | − 0·002 |
| 185 | 36 Leonis Min. . | 6·0 | 10 31 44·690 | ,, | 22 | + 3·4195 | − 0·0262 | − 0·002 |
| 186 | 37 Leonis Min. . | 4·8 | 10 32 38·566 | $\rho$ Leonis | 10 | + 3·3899 | − 0·0241 | 0·000 |
| 187 | 50 Leonis . . | 6·5 | 10 33 6·929 | $\mu$ Hydræ | 8 | + 3·2209 | − 0·0118 | + 0·002 |
| 188 | 39 Leonis Min. . | 6·5 | 10 34 22·308 | ,, & $\rho$ Leonis | 22 | + 3·3330 | − 0·0200 | − 0·003 |
| 189 | Piazzi X. 131 . | 6·5 | 10 36 8·250 | $\rho$ Leonis | 10 | + 3·3745 | − 0·0236 | − 0·002 |
| 190 | Piazzi X. 139 . | 5·1 | 10 37 32·597 | $l$ Leonis | 22 | + 3·2797 | − 0·0164 | − 0·006 |
| 191 | 36 Sextantis . . | 6·5 | 10 39 35·528 | $l$ Leonis | 22 | + 3·0971 | − 0·0038 | − 0·003 |
| 192 | 37 Sextantis . . | 6·2 | 10 40 28·262 | ,, | 12 | + 3·1280 | − 0·0058 | − 0·001 |
| 193 | 55 Leonis . . . | 6·0 | 10 50 8·926 | ,, | 4 | + 3·0818 | − 0·0025 | + 0·006 |
| 194 | 50 Leonis Min. . | 6·0 | 10 50 42·692 | ,, | 22 | + 3·2674 | − 0·0176 | − 0·007 |
| 195 | 49 Ursæ Majoris | 6·0 | 10 54 47·214 | ,, & $\chi$ Leonis | 28 | + 3·3852 | − 0·0305 | − 0·009 |
| 196 | 60 Leonis . . $b$ | 4·5 | 10 56 33·811 | $l$ Leonis & $\chi$ Leonis | 54 | + 3·2111 | − 0·0135 | − 0·003 |
| 197 | 67 Leonis . . . | 5·6 | 11 3 1·456 | $\delta$ Leonis & $\chi$ Leonis | 22 | + 3·2277 | − 0·0163 | + 0·002 |
| 198 | Piazzi X. 252 . | 6·0 | 11 3 22·743 | ,, ,, | 34 | + 3·3180 | − 0·0265 | − 0·002 |
| 199 | 72 Leonis . . . | 4·9 | 11 9 27·684 | $\delta$ Leonis | 20 | + 3·2009 | − 0·0148 | + 0·002 |
| 200 | Piazzi XI. 22 . | 6·0 | 11 10 19·456 | ,, | 8 | + 3·1413 | − 0·0082 | + 0·003 |
| 201 | 53 Ursæ Maj. . $\xi$ | 3·8 | 11 12 25·457 | $\delta$ Leonis | 46 | + 3·2457 | − 0·0212 | − 0·022 |
| 202 | 54 Ursæ Maj. . $\nu$ | 3·8 | 11 12 38·720 | ,, | 18 | + 3·2554 | − 0·0226 | − 0·004 |
| 203 | 88 Leonis . . . | 6·0 | 11 26 10·314 | $\tau$ Leonis | 12 | + 3·1252 | − 0·0082 | − 0·026 |
| 204 | Piazzi XI. 111 | 5·8 | 11 30 36·894 | ,, | 10 | + 3·1649 | − 0·0168 | − 0·003 |
| 205 | 59 Ursæ Majoris | 5·5 | 11 32 35·227 | ,, | 12 | + 3·2279 | − 0·0315 | − 0·020 |
| 206 | Piazzi XI. 146 | 6·5 | 11 37 54·136 | $\tau$ Leonis | 12 | + 3·1898 | − 0·0286 | 0·000 |
| 207 | Piazzi XI. 164 | 6·0 | 11 44 5·067 | $\pi$ Virginis | 12 | + 3·1388 | − 0·0212 | − 0·008 |
| 208 | Groom. 1830 | 6·4 | 11 46 45·314 | ,, | 6 | + 3·1340 | − 0·0235 | + 0·344 |
| 209 | 6 Virginis . $A^2$ | 6·0 | 11 49 30·649 | ,, | 6 | + 3·0823 | − 0·0035 | − 0·004 |
| 210 | 95 Leonis . . $o$ | 5·4 | 11 50 7·284 | ,, | 12 | + 3·0894 | − 0·0075 | 0·000 |

| No. | Mean North Polar Distance Jan. 1, 1892 | No. of Stations of Observation | Total No. of Observations | Annual Precession | Secular Variation | Proper Motion | Number in | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | B.A.C. | Gr. Cat. 1872 | Gr. Cat. 1880 |
| | ° ′ ″ | | | ″ | ″ | ″ | | | |
| 176 | 57 59 46·6 | 1 | 4 | +17·742 | + 0·228 | + 0·050 | 3490 | 965 | 1662 |
| 177 | 66 2 40·3 | 13 | 86 | +17·815 | + 0·216 | − 0·047 | 3508 | 969 | 1666 |
| 178 | 69 58 52·0 | 4 | 18 | +17·940 | + 0·207 | + 0·201 | 3522 | ... | 1672 |
| 179 | 55 39 15·0 | 14 | 69 | +18·164 | + 0·206 | + 0·067 | 3560 | 984 | ... |
| 180 | 79 41 12·8 | 5 | 20 | +18·245 | + 0·184 | − 0·030 | 3575 | ... | 1691 |
| 181 | 75 6 16·8 | 14 | 51 | +18·285 | + 0·185 | + 0·012 | 3579 | 989 | ... |
| 182 | 57 3 59·5 | 6 | 24 | +18·380 | + 0·191 | + 0·015 | 3602 | 995 | 1701 |
| 183 | 75 18 31·3 | 8 | 20 | +18·405 | + 0·178 | − 0·025 | 3606 | 996 | 1703 |
| 184 | 80 47 31·4 | 2 | 8 | +18·505 | + 0·169 | + 0·050 | 3622 | ... | ... |
| 185 | 55 21 42·7 | 2 | 12 | +18·584 | + 0·179 | + 0·060 | 3633 | ... | ... |
| 186 | 57 27 47·3 | 21 | 142 | +18·614 | + 0·176 | + 0·015 | 3640 | 1003 | 1713 |
| 187 | 73 18 39·4 | 1 | 3 | +18·629 | + 0·166 | + 0·067 | 3643 | 1004 | 1714 |
| 188 | 61 54 43·7 | 1 | 2 | +18·669 | + 0·169 | 0·000 | 3650 | 1007 | 1717 |
| 189 | 57 44 16·4 | 1 | 4 | +18·725 | + 0·168 | 0·000 | 3661 | 1009 | 1720 |
| 190 | 66 14 47·6 | 11 | 41 | +18·769 | + 0·160 | + 0·044 | 3671 | 1012 | 1724 |
| 191 | 86 56 39·3 | 2 | 12 | +18·831 | + 0·147 | + 0·055 | 3684 | ... | 1727 |
| 192 | 83 3 28·2 | 2 | 12 | +18·858 | + 0·147 | + 0·025 | 3690 | ... | 1729 |
| 193 | 88 41 15·2 | 9 | 24 | +19·129 | + 0·127 | + 0·025 | 3749 | ... | 1748 |
| 194 | 63 55 23·7 | 4 | 16 | +19·143 | + 0·134 | + 0·010 | 3751 | ... | ... |
| 195 | 50 12 28·3 | 1 | 5 | +19·246 | + 0·130 | + 0·020 | 3765 | ... | ... |
| 196 | 69 14 27·0 | 5 | 23 | +19·290 | + 0·120 | − 0·040 | 3776 | 1031 | 1762 |
| 197 | 64 45 25·1 | 12 | 47 | +19·436 | + 0·107 | − 0·012 | 3809 | 1039 | 1780 |
| 198 | 53 6 22·0 | 1 | 4 | +19·444 | + 0·110 | + 0·138 | 3811 | 1040 | ... |
| 199 | 66 18 57·5 | 5 | 27 | +19·567 | + 0·094 | + 0·005 | 3842 | ... | 1794 |
| 200 | 76 33 53·9 | 1 | 4 | +19·584 | + 0·090 | + 0·089 | 3845 | 1050 | ... |
| 201 | 57 51 47·8 | 22 | 182 | +19·622 | + 0·089 | + 0·592 | 3851 | 1053 | 1800 |
| 202 | 56 18 59·4 | 3 | 13 | +19·626 | + 0·089 | − 0·052 | 3852 | 1054 | 1802 |
| 203 | 75 2 0·2 | 1 | 4 | +19·835 | + 0·058 | + 0·155 | 3919 | 1068 | 1831 |
| 204 | 61 37 19·2 | 14 | 120 | +19·888 | + 0·050 | + 0·012 | 3937 | 1074 | 1840 |
| 205 | 45 46 34·1 | 1 | 4 | +19·910 | + 0·048 | + 0·055 | 3952 | ... | 1843 |
| 206 | 47 40 44·7 | 3 | 13 | +19·960 | + 0·036 | + 0·100 | 3973 | 1084 | 1853 |
| 207 | 54 28 6·6 | 1 | 5 | +20·004 | + 0·023 | + 0·030 | 3998 | ... | ... |
| 208 | 51 30 23·6 | 9 | 42 | +20·019 | + 0·018 | + 5·770 | 4010 | 1094 | 1870 |
| 209 | 80 57 22·4 | 3 | 10 | +20·032 | + 0·012 | + 0·071 | 4027 | ... | ... |
| 210 | 73 45 9·3 | 2 | 8 | +20·034 | + 0·011 | + 0·025 | 4031 | 1099 | 1874 |

| No. | Name of Star | Mag. | Mean Right Ascension Jan. 1, 1892 | Nautical Almanac Comparison Star | No. of Obser-vations | Annual Precession | Secular Variation | Proper Motion |
|---|---|---|---|---|---|---|---|---|
| | | | h m s | | | s | s | s |
| 211 | 2 Comæ . . . | 6·0 | 11 58 44·777 | π Virginis | 38 | + 3·0756 | − 0·0103 | + 0·001 |
| 212 | 9 Virginis . o | 4·3 | 11 59 42·490 | „ | 40 | + 3·0729 | − 0·0030 | − 0·010 |
| 213 | 10 Virginis . . | 6·1 | 12 4 9·249 | η Virginis | 8 | + 3·0715 | + 0·0008 | + 0·003 |
| 214 | Piazzi XII. 3 . | 5·7 | 12 5 16·904 | π Virginis | 20 | + 3·0563 | − 0·0134 | ... |
| 215 | 6 Comæ . . . | 5·1 | 12 10 31·058 | η Virginis | 22 | + 3·0556 | − 0·0057 | − 0·006 |
| 216 | 11 Comæ . . . | 4·9 | 12 15 15·547 | η Virginis | 32 | + 3·0430 | − 0·0069 | − 0·009 |
| 217 | Piazzi XII. 75 | 6·2 | 12 19 49·135 | „ & γ Virg. | 14 | + 3·0199 | − 0·0101 | + 0·004 |
| 218 | 32 Virginis . $d^2$ | 6·5 | 12 40 9·747 | δ Virginis | 14 | + 3·0388 | 0·0000 | − 0·003 |
| 219 | 34 Virginis . . | 5·9 | 12 41 47·509 | „ | 12 | + 3·0186 | − 0·0021 | + 0·006 |
| 220 | 30 Comæ . . . | 6·0 | 12 44 1·712 | „ | 22 | + 2·9361 | − 0·0099 | − 0·009 |
| 221 | 31 Comæ . . . | 5·0 | 12 46 26·331 | δ Virginis | 24 | + 2·9288 | − 0·0097 | 0·000 |
| 222 | 35 Comæ . . . | 5·1 | 12 47 58·759 | „ | 14 | + 2·9613 | − 0·0063 | 0·000 |
| 223 | 41 Virginis . . | 6·4 | 12 48 24·588 | „ | 24 | + 3·0079 | − 0·0019 | + 0·005 |
| 224 | Bradley 1724 . | 3·0 | 12 50 57·256 | „ & ε Virg. | 32 | + 2·8348 | − 0·0151 | − 0·024 |
| 225 | 36 Comæ . . . | 5·0 | 12 53 35·019 | ε Virginis | 10 | + 2·9720 | − 0·0040 | − 0·002 |
| 226 | 37 Comæ . . . | 5·1 | 12 55 6·456 | ε Virginis | 20 | + 2·8785 | − 0·0105 | + 0·003 |
| 227 | 48 Virginis . . | 6·6 | 12 58 20·525 | „ & α Can. Ven. | 14 | + 3·0907 | + 0·0066 | 0·000 |
| 228 | 14 Canum Ven. . | 5·0 | 13 0 41·480 | ε Virginis | 16 | + 2·8149 | − 0·0124 | − 0·002 |
| 229 | 39 Comæ . . . | 6·1 | 13 1 5·424 | „ & α Can. Ven. | 16 | + 2·9322 | − 0·0051 | − 0·005 |
| 230 | Bradley 1745 . | 6·0 | 13 2 43·474 | „ „ | 36 | + 2·8794 | − 0·0081 | − 0·005 |
| 231 | Piazzi XII. 283 | 6·7 | 13 4 29·169 | α Canum Ven. | 32 | + 2·9561 | − 0·0029 | − 0·011 |
| 232 | 17 Canum Ven. . | 6·1 | 13 5 5·686 | „ & ε Virg. | 26 | + 2·7684 | − 0·0132 | − 0·006 |
| 233 | Piazzi XIII. 27 | 5·0 | 13 8 49·169 | „ „ | 26 | + 2·7322 | − 0·0135 | − 0·002 |
| 234 | 59 Virginis . e | 5·1 | 13 11 24·869 | ε Virginis | 8 | + 3·0004 | + 0·0009 | − 0·023 |
| 235 | 74 Virginis . $l^2$ | 4·9 | 13 26 20·905 | ζ Virg. and α Virg. | 16 | + 3·1217 | + 0·0092 | − 0·009 |
| 236 | 3 Bootis . . . | 5·8 | 13 41 42·482 | τ Virginis | 10 | + 2·7896 | − 0·0038 | + 0·002 |
| 237 | 5 Bootis . . υ | 4·1 | 13 44 16·088 | „ | 10 | + 2·9004 | + 0·0001 | − 0·005 |
| 238 | 10 Bootis . . . | 5·3 | 13 53 35·264 | „ | 10 | + 2·8128 | − 0·0015 | − 0·003 |
| 239 | Piaz. XIII. 316 | 6·5 | 14 3 36·806 | „ | 8 | + 2·4010 | − 0·0062 | + 0·006 |
| 240 | Bradley 1848 . | 6·0 | 14 10 59·685 | f Bootis | 8 | + 2·8177 | + 0·0005 | + 0·009 |
| 241 | Bootis . . A | 4·8 | 14 13 26·076 | f Bootis | 10 | + 2·5384 | − 0·0037 | + 0·010 |
| 242 | Groom. 2100 . | 6·0 | 14 15 21·909 | „ | 10 | + 2·4634 | − 0·0041 | + 0·010 |
| 243 | Groom. 2154 . | 5·5 | 14 46 13·987 | ψ Bootis | 10 | + 2·3868 | − 0·0009 | − 0·012 |
| 244 | 37 Bootis . . ξ | 4·6 | 14 46 24·611 | „ | 16 | + 2·7574 | + 0·0022 | + 0·017 |
| 245 | Piaz. XIV. 226 | 5·8 | 14 52 9·587 | „ | 24 | + 2·7967 | + 0·0031 | + 0·004 |

| No. | Mean North Polar Distance Jan. 1, 1892 | No. of Stations of Observation | Total No. of Observations | Annual Precession | Secular Variation | Proper Motion | Number in | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | B.A.C. | Gr. Cat. 1872 | Gr. Cat. 1880 |
| | ° ′ ″ | | | ″ | ″ | ″ | | | |
| 211 | 67 56 23·1 | 2 | 10 | +20·053 | − 0·006 | − 0·010 | 4066 | ... | ... |
| 212 | 80 40 2·5 | 6 | 26 | +20·053 | − 0·008 | 0·000 | 4072 | 1110 | 1888 |
| 213 | 87 29 45·3 | 8 | 22 | +20·050 | − 0·017 | + 0·190 | 4094 | 1112 | 1892 |
| 214 | 62 7 1·2 | 1 | 4 | +20·047 | − 0·019 | − 0·025 | 4100 | 1116 | 1896 |
| 215 | 74 29 59·9 | 10 | 37 | +20·032 | − 0·029 | + 0·067 | 4125 | 1128 | 1908 |
| 216 | 71 36 37·4 | 4 | 14 | +20·008 | − 0·038 | − 0·110 | 4156 | 1137 | 1929 |
| 217 | 65 28 27·6 | 2 | 8 | +19·978 | − 0·047 | + 0·036 | 4184 | 1141 | 1937 |
| 218 | 81 44 12·6 | 2 | 7 | +19·746 | − 0·086 | + 0·100 | 4286 | ... | ... |
| 219 | 77 27 5·7 | 4 | 16 | +19·720 | − 0·088 | + 0·150 | 4292 | 1176 | 1994 |
| 220 | 61 51 32·9 | 2 | 8 | +19·684 | − 0·090 | − 0·060 | 4304 | 1182 | 2003 |
| 221 | 61 52 17·3 | 5 | 18 | +19·643 | − 0·094 | 0·000 | 4315 | 1186 | 2005 |
| 222 | 68 10 4·2 | 10 | 96 | +19·615 | − 0·098 | + 0·021 | 4328 | 1188 | 2008 |
| 223 | 76 59 38·7 | 1 | 4 | +19·607 | − 0·100 | − 0·004 | 4329 | 1189 | 2009 |
| 224 | 51 6 9·3 | 1 | 4 | +19·559 | − 0·100 | − 0·055 | 4345 | 1195 | 2019 |
| 225 | 72 0 30·6 | 4 | 16 | +19·507 | − 0·109 | − 0·005 | 4351 | 1198 | 2024 |
| 226 | 58 37 56·5 | 5 | 22 | +19·476 | − 0·108 | + 0·005 | 4360 | 1201 | 2029 |
| 227 | 93 4 55·4* | ... | ... | +19·407 | − 0·122 | + 0·018 | 4373 | 1206 | 2035 |
| 228 | 53 37 23·9 | 5 | 21 | +19·354 | − 0·116 | + 0·009 | 4384 | 1207 | ... |
| 229 | 68 16 1·7 | 3 | 14 | +19·345 | − 0·121 | + 0·020 | 4387 | 1208 | 2039 |
| 230 | 61 51 57·4 | 1 | 4 | +19·306 | − 0·122 | + 0·110 | 4393 | ... | ... |
| 231 | 72 34 34·0 | 1 | 4 | +19·264 | − 0·128 | + 0·100 | 4403 | 1214 | ... |
| 232 | 50 55 38·5 | 1 | 4 | +19·249 | − 0·121 | − 0·013 | 4415 | 1217 | 2048 |
| 233 | 49 16 32·6 | 1 | 4 | +19·155 | − 0·126 | + 0·005 | 4433 | ... | 2055 |
| 234 | 80 0 41·6 | 1 | 5 | +19·087 | − 0·142 | − 0·160 | 4440 | ... | 2060 |
| 235 | 95 41 53·5 | 1 | 6 | +18·646 | − 0·176 | + 0·035 | 4516 | 1239 | 2097 |
| 236 | 63 45 20·9 | 2 | 8 | +18·110 | − 0·182 | + 0·065 | 4594 | 1260 | 2143 |
| 237 | 73 39 58·4 | 2 | 4 | +18·013 | − 0·194 | − 0·042 | 4615 | 1265 | 2150 |
| 238 | 67 46 36·7 | 1 | 2 | +17·640 | − 0·203 | + 0·038 | 4664 | 1279 | 2176 |
| 239 | 45 37 53·5 | 1 | 6 | +17·206 | − 0·187 | − 0·013 | 4699 | 1288 | ... |
| 240 | 70 35 7·4 | 1 | 5 | +16·865 | − 0·230 | + 0·060 | 4731 | ... | ... |
| 241 | 53 59 31·4 | 1 | 2 | +16·749 | − 0·211 | − 0·050 | 4747 | 1309 | 2224 |
| 242 | 50 42 32·8 | 1 | 2 | +16·656 | − 0·207 | ... | 4758 | ... | ... |
| 243 | 52 17 5·6 | 1 | 4 | +15·005 | − 0·237 | − 0·112 | 4906 | 1343 | 2302 |
| 244 | 70 27 2·4 | 3 | 10 | +14·995 | − 0·273 | + 0·150 | 4905 | 1344 | 2303 |
| 245 | 73 10 36·0 | 3 | 10 | +14·656 | − 0·285 | − 0·024 | 4933 | 1351 | 2314 |

* Brought up to date from the Greenwich Catalogue of 1880.

| No. | Name of Star | Mag. | Mean Right Ascension Jan. 1, 1892 | Nautical Almanac Comparison Star | No. of Observations | Annual Precession | Secular Variation | Proper Motion |
|---|---|---|---|---|---|---|---|---|
| | | | *h m s* | | | *s* | *s* | *s* |
| 246 | * B.F. 2051 . . | 6·0 | 14 55 17·386 | ψ Bootis | 10 | + 2·2938 | − 0·0002 | − 0·001 |
| 247 | 40 Bootis . . . | 5·4 | 14 55 28·561 | ,, | 10 | + 2·3036 | − 0·0002 | ... |
| 248 | 41 Bootis . . ω | 4·9 | 14 57 22·719 | ,, | 22 | + 2·6282 | + 0·0014 | + 0·003 |
| 249 | 42 Bootis . . β | 3·6 | 14 57 52·731 | ,, | 10 | + 2·2638 | 0·0000 | − 0·001 |

* Baily's Edition of Flamsteed's Catalogue.

| No. | Mean North Polar Distance Jan. 1, 1892 | No. of Stations of Observation | Total No. of Observations | Annual Precession | Secular Variation | Proper Motion | Number in | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | B.A.C. | Gr. Cat. 1872 | Gr. Cat. 1880 |
| | ° ′ ″ | | | ″ | ″ | ″ | | | |
| 246 | 49 55 35·0 | 1 | 4 | + 14·468 | − 0·238 | ... | 4942 | ... | ... |
| 247 | 50 18 25·1 | 1 | 44 | + 14·457 | − 0·239 | − 0·005 | 4943 | 1353 | 2320 |
| 248 | 64 33 53·5 | 1 | 4 | + 14·341 | − 0·274 | + 0·113 | 4953 | 1355 | 2325 |
| 249 | 49 10 59·1 | 4 | 30 | + 14·310 | − 0·237 | 0·000 | 4958 | 1356 | 2327 |

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# CATALOGUE OF STARS

FOR THE EPOCH

## JAN. 1, 1892

## FROM OBSERVATIONS

BY THE

## GREAT TRIGONOMETRICAL SURVEY OF INDIA.

COMPILED UNDER THE DIRECTION OF

COLONEL H. R. THUILLIER, C.I.E., R.E., SURVEYOR GENERAL OF INDIA.

BY

COLONEL G. STRAHAN, R.E., DEPUTY SURVEYOR GENERAL,
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